

REMARKS

This Amendment is filed in response to the Office Action dated July 25, 2008. The Applicant respectfully requests reconsideration of the rejections presented therein. All objections and rejections are respectfully traversed.

Claims 1-30 are now pending in the application.

Claims 1, 2, 18, 25, 27 and 28 have been amended.

New claims 29 and 30 have been added.

Claim Rejections - 35 U.S.C. §103

At paragraphs 4-7 of the Office Action, claims 1-4, 12-16, 18-20, and 24-28 were rejected under 35 U.S.C. §103(a) over Ishwar et al., U.S. Publication No. 2004/0017816 (hereinafter “Ishwar”), in view of Casey, U.S. Publication No. 2003/0142674 (hereinafter “Casey”), in further view of Khill, U.S. Publication No. 2003/0147405 (hereinafter “Khill”).

The Applicant’s amended claim 1, representative in part of the other rejected claims, sets forth:

1. (CURRENTLY AMENDED) In a data network comprising a plurality of nodes, a method for transferring data packets between a source node and a destination node contained in the network, wherein the source node and destination node belong to the same particular virtual-local-area network (VLAN), the method comprising the steps of:

establishing a virtual port associated with the destination node, *the virtual port supporting a plurality of connections that are each associated with a different VLAN*, a particular connection associated with the particular VLAN;

maintaining a single control structure for the virtual port, the single control structure storing information associated with each connection of the plurality of connections, the information including connection status and statistics for each connection of the plurality of connections;

acquiring a data packet from the source node, wherein the packet is associated with the particular VLAN and contains a destination address associated with the destination node; and
transferring the packet to the destination node over the particular connection via the virtual port

Ishwar discusses “logical ports” for passing VLAN packets. *See* Ishwar abstract and paragraph 0040. A logical port is bound to a particular physical port and to a particular “VLAN tunnel” connecting to a destination. *See* paragraph 0037 and 0039. That is, “one logical port is established for each connection by binding the logical port to the corresponding physical port and to the respective VLAN tunnel. For example, logical port LP_{3, 600} is bound to physical port P₃ and stacked VLAN tunnel 600... logical port LP_{3, 610} is bound to physical port P₃ and stacked VLAN tunnel 610, and logical port LP_{3, 620} is bound to physical port P₃ and stacked VLAN tunnel 620.” *See* paragraph 0041.

Casey discusses providing “virtual bridges” that maintain separate contexts for different customers. *See* Casey abstract and paragraph 0037. The “virtual bridges” have “virtual bridge ports” for passing traffic. *See* paragraph 0038. “VC tunnels” may be established from a “virtual bridge port” and lead to “virtual bridge ports” of other devices. *See* paragraphs 0039-0040 and Fig 5. 400, 402, 404, and 406.

Khill discusses a technique “to protect filter databases used in virtual bridges, so as to prevent DOS attacks.” *See* Khill paragraphs 0018 and 0033. A “filtering database holds information ... to determine, given a destination MAC address of a packet, the real or virtual port through which to transmit the packet.” *See* paragraph 0015. For example, Fig. 1 shows a filtering database (14), “which is shared among a number of different VLAN domains.” *See* paragraph 0033. “A learning budget is assigned to each VLAN domain served by the bridge 10. As long as the budget for the respective VLAN domain has not been exhausted, the learning process adds suitable entries to the filtering database based on the packet source addresses.” *See* paragraph 0034. Use of these limits helps to prevent DOS attacks.

The Applicant respectfully urges that Ishwar, Casey and Khill do not teach or suggest the Applicant's claimed *"the virtual port supporting a plurality of connections that are each associated with a different VLAN"* and *"maintaining a single control structure for the virtual port, the single control structure storing information associated with each connection of the plurality of connections, the information including connection status and statistics for each connection of the plurality of connections."*

In the Applicant's claimed technique, a single control structure is maintained for a virtual port that supports a plurality of connections associated with different VLANs. The control structure for the virtual port stores information associated with each connection of the plurality of connections, including connection status and statistics for each connection. By organizing the connections associated with different VLANs under the virtual port, which is managed by a single control structure, rather than operating the connections separately, and managing them individually with separate control structures, resources are advantageously conserved. As the Applicant discusses in the specification, absent the Applicant's novel techniques, intermediate nodes previously have suffered resource shortfalls. *See* specification page 3, lines 7-15. The Applicant's novel technique overcomes this problem, as well as other issues. *See* specification page 5, lines 1-10.

There appears to be agreement that neither Ishwar, nor Casey, suggest this aspect of the Applicant's claims. *See* Office Action, page 5 (agreeing "Ishwar et al. and Casey do not disclose the step of maintaining a single control structure for the virtual port..."). However, the Office Action then turns to Khill.

The Applicant respectfully requests reconsideration of the relevance of Khill. Khill simply describes a filtering database that may be used "to determine, given a destination MAC address of a packet, the real or virtual port through which to transmit the packet." *See* paragraph 0015. That is, the filtering database simply maps MAC addresses to ports. Khill's filtering database may not fairly be considered *"a single control structure for the virtual port, the single control structure storing information associ-*

ated with each connection of the plurality of connections, the information including connection status and statistics for each connection of the plurality of connections.”

First, Khill’s filtering database does not store **information associated with each connection** of a plurality of connections. The MAC addresses in Khill’s filtering database are simply mapped to ports, not to connections that are supported by ports. That is, there is no suggestion in Khill that his filtering database stores any information related to connections.

Second, Khill’s filtering database does not store **connection status** for each of a plurality of connections. As discussed above, Khill’s filtering database simply stores a mapping of MAC addresses to ports, not connection status information.

Third, Khill’s filtering database does not store any **statistics** for each of a plurality of connections. Again, Khill’s filtering database simply stores a mapping of MAC addresses to ports; no mention is made of statistics for connections.

In light of these differences, the Applicant respectfully urges that Khill does not remedy the deficiencies of Ishwar and Casey. Accordingly, the combination of Ishwar, Casey and Khill is legally insufficient to make obvious the claims under 35 U.S.C. §103(a).

At paragraph 8 of the Office Action, claims 5, 8 and 17 were rejected under 35 U.S.C. §103(a) over Ishwar, in view Casey, in further view of Khill, in further view of Delaney et al., U.S. Patent No. 6,937,574 (hereinafter “Delaney”).

The Applicant respectfully urges that each of these claims is a dependent claim that depends from an independent claim that is believed to be allowable. Accordingly, these dependent claims are believed to be allowable due to their dependency, as well as for other independent reasons.

At paragraphs 9 of the Office Action, claims 6, 7, 9 and 21 were rejected under 35 U.S.C. §103(a) over Ishwar, in view Casey, in further view of Khill.

The Applicant respectfully urges that each of these claims is a dependent claim that depends from an independent claim that is believed to be allowable. Accordingly, these dependent claims are believed to be allowable due to their dependency, as well as for other independent reasons.

At paragraph 10 of the Office Action, claims 10, 11, 22 and 23 were rejected under 35 U.S.C. §103(a) over Ishwar, in view of Casey, in further view of Khill, in further view of “the background of the invention of Ishwar et al.”

The Applicant respectfully urges that each of these claims is a dependent claim that depends from an independent claim that is believed to be allowable. Accordingly, these dependent claims are believed to be allowable due to their dependency, as well as for other independent reasons.

Should the Examiner believe telephonic contact would be helpful in the disposition of this Application, the Examiner is encouraged to call the undersigned attorney at (617) 951-2500.

In summary, all the independent claims are believed to be in condition for allowance and therefore all dependent claims that depend there from are believed to be in condition for allowance. The Applicant respectfully solicits favorable action.

Please charge any additional fee occasioned by this paper to our Deposit Account
No. 03-1237.

Respectfully submitted,

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